

ac præcipuè in Vesicularum ejus oris ac limbis situm est, à quo omnibus cellulis, imò & ipsi tunica succingenti, capillaribus ac ferè invisibilibus ramusculis prospicit.

Animalia, quæ suspicor eandem cum Ranis Pulmonis structuram obtinere, sunt Bufones, Lacertæ, Serpentes, Chamæleontes, Testudines, Salamandræ aquaticæ, & si quæ sunt alia pulmonibus Membranosis instructa; quorum structuram mihi nondum licuit perquirere. Suffecerit jam indicasse animalia, Virisque me longè sagacioribus viam monstrasse.

Cùm videam vobis grata fuisse, quæ de Nasi-cornis Scarabæi genitalibus nota veram, non alienum fore duxi eorum delineationem Cl. Tuæ transmittere; in qua imprimis exhibentur non modò Testiculi ex unico funiculo duos pedes & sex pollices longo; sed & Vasa Deferentia, semen copiosum ac album, quando caduntur, stillantia; nec non vesiculæ sèu potius glandulæ seminales sex, admodum elegantes; glandularumq; seminalium ductus protensè, materiam seminalem sub-flavam (ut in hominibus ac brutis quoq; observatur) continentes.

An Account of some Books.

- I. *LA STATIQUE, ou La Science des Forces Mouvantes, par le P. Ignace Gaston Pardies, de la Compagnie de Jesus. A Paris, 1673. in 12°.*

THE Learned Author of this Book had proposèd to himself to write a whole Body of *Mechanicks*, such an one, as might be accommodate to ordinary Capacities; he conceiving, that there had not been extant hitherto a compleat system of that Science, or, if there had, it did exceed the reach of most Readers: which latter he thinks to be the Character due to Dr. Wallis his Three Tomes *de Motu & Mechanice*, of which we gave an Account N°. 54. p. 1086. N°. 61. p. 2005. N°. 78. p. 2286.

But since the publication of this part of it, we understand that he hath been prevented and cut off by an intemely Death; being regretted by those that knew his frankness and strong inclinations to promote philosophical knowledge. How far he hath indeed advanced those other parts of this Design, and, whe-

whether those of his Society, in case he hath made a good progress therein, will take care to see it published, we know not; but yet hope, *He* hath gone a good way therein, and, if so, that his Companions will not suppress his labors, for the benefit of young Students in this kind of knowledge.

Concerning the *whole Design*, the Author (as appears by the *Preface* to this part of it) had so contrived it as to make it up of *Six* parts.

The *first* is of *Local motion*, already published by him, though he thought not fit to prefix his Name to that part, in the year 1670. in *French*, and English't the same year; described in *Numb. 65. p. 2010.*

The *second* is this very Discourse, entitled as above; which treats of such Motions, as are performed with Violence, by surmounting the Resistance that is made from elsewhere. Here, besides the Demonstration given of all those Moving Engines, whose force may be reduced to that of the *Ballance*, some reflexion is made on the Impossibility of the *Perpetual Motion*. Besides, the Author treats of Bodies suspended, fastned at one or both Ends; of the manner how they are broken; of the figure they take in becoming curve; and particularly of the *Cases*, where Cords extended will be Parabolical, Hyperbolical, Elliptical, or Circular. More-over, he examines the force of Towers and Pyramids, and shews in what part they are weakest; he determines the figures they ought to have to render them perfect and able every where to resist equally to the violence of Winds; delivers General Rules of the Resistance of bodies, and teaches the way of applying those general rules to particular cases, relating to Architecture and other effects of Nature and Art: And taking an Example of the motion of a *Ship*, he observeth the use that may be made therein of the Rules of Mechanicks.

By the by, having made mention in the *Preface* of the uniform motion in a *Cycloid*, he gives us his way of demonstrating this Uniformity, to see, whether, when *M. Hugen*s shall have published his demonstration, he be so fortunate as to concur with him in it.

As for the other *four* parts, (which his Death, 'tis feared, will

will deprive us of,) they should have contained, as he intimates in the same *Preface*, the following particulars :

The *first* of them, the Motion of *Heavy* bodies; shewing all the proprieties of this motion, whether it be that the Bodies descend by their own weight, or are mov'd by some pulsion of violence. Where he would give the reason of that admirable augmentation and diminution of the Celerity of bodies, that pass in their ascent and descent through all the imaginable degrees of Tardity. On which occasion he would have discoursed, that *Galilei* hath not shew'd those proprieties but by supposing a Definition which is contested; and that *Baliani* undertook to give an other Progression to the Motion of those Bodies. Which two Authors having had their respective abettors, and whole Volumes of contestations having been written about it between *Gassendus* and *Cazre*, the whole business seem'd to have been determined by three great Geometricians; *M. Hugen*s and the *P. de Billy* having demonstrated, that the Progression of *Baliani* was impossible; and *M. Fermat* having shew'd, that there would need no less than a whole eternity for a Body that should, with this proportion of celerity, descend the height of one only foot. Whereupon the Learned seem'd to have yielded to such regular demonstrations: But it appears, that *P. Lalouvera* survening made it out, that notwithstanding all those demonstrations, the Progression of *Baliani* was very possible and very natural; the manner wherewith he maintained it, having appeared so fair, that *M. Fermat* himself was never able to gain say it. All which the Author would have delivered in this *first* of the *four* remaining parts, and shew'd, that that first weight, or that determined degree of celerity, on which *Lalouvera's* demonstration is grounded, cannot subsist. Where also should have been explained, not only a Progression altogether like it, found in the Motion of an Arm or Foot, or of Instruments which we hold when we strike; but also an other kind of Progression, such as we find in Canon-bullets, or in Arrows shot with a Cross-bow. To all which he would have added in the same part an examination of the motion made upon *Inclined* Superficies; where would have occur'd the demonstration, made also by

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M. Hgens, of that important proposition, touching the motion made in a Cycloid.

The *second* of them, would have consisted of the Motion of *Liquids* ; where he would not only have demonstrated all the *phenomena* of the Celerity of Liquors, of the Force of their Pressure, of the Direction and Figure they take in their Jets, Course, and Equal Poise ; but also comprehended the whole Science of *Pneumatiques*, (since Air is a liquid ;) the force of Springs, Rarefaction and Condensation, and the strange Violence of Gun powder kindled, and all the new Experiments of the *Vacuum*, and the reason of all those surprising Effects observed in them.

The *third* would have treated of the motion of *Vibration*, Where he would have described a *Pendulum* having all its vibrations synchronous, together with a demonstration, *that* all Vibrations of a cord extended do last equally long ; *that* the Vibrations of two cords of an equal thickness and tension are in a reciprocal proportion of the Length of the cords, whereas in *Pendulums* they are only in a sub-duplicate proportion ; *that* in equal cords the Vibrations are in a sub-duplicate proportion of the forces or weights that make them tense ; *that* the Vibrations are likewise in a sub-duplicate proportion of the thickness of the cords equally long and equally tense. And so he would have demonstrated by the Causes, what ever hath been observed by Experience in Sounds and in the Harmony of tense Bodies.

The *fourth* would have discoursed of the Motion of *Undulation*, taking for an Example those Circles that are made on the surface of the water upon the throwing in of a stone. Where also would have been considered some Circles like the former, such as may be formed in the Air, and even in some other more subtle Bodies, which manifest experiments evince to be spread every-where. And of such Circles he would have examined, how they may be formed, how their motion is communicated, what are the lines of their direction, with what force they may act near or far off, how they may reflect and refract. Further, supposing that *Sound* hath for its vehicle this kind of motion in the Air, he would have explained all
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what concerns *Sounds*; and making a Conjecture about the propagation of *Light*, he would have discussed, whether it might not be supposed, that *Light* hath for its vehicle some such motion in an Air more subtile; and shew'd, that indeed in this *Hypothesis* all the proprieties of *Light* and *Colours* might be explained in a very natural way, without which it would not be done but with great difficulty.

This is the whole Design, drawn up by the Author; in which he intended, as he saith in this piece, to have interspersed divers curious and useful practises of Art, and many demonstrations giving light for the decision of several considerable Questions in Natural Philosophy.

II. *Antonii le Grand HISTORIA NATURÆ. Londini, apud J. Martyn, R. Societ. Typographum, ad Insigne Campanæ in Cæmeterio D. Pauli, A. 1673. in 8°.*

THE Learned Author of this Book, desirous to shew, that even the common and obvious *phenomena* of Nature can be very congruously explained and accounted for by those Principles he hath formerly laid down, and published A 1672. under the Title of *Institutio Philosophiæ*, described in *Numb. 80.* of these Tracts; maketh it his business in this Treatise, to pass, for that purpose, through the whole Body of Physiology, and in so doing to supply in due places what he hath omitted in the said Institution.

This he performeth in *Nine* several parts, into which he thought fit to divide his Book;

In the *first* of which he treats of the Nature of *Bodies* in general: Where he endeavors, to disprove all Vacuity in Bodies; to refute the Arguments and Experiments alledged to assert a vacuum; and to explain the Proprieties and Affections of Bodies, as Indefinit Divisibility, Rarity and Density, Hardness and Fluidity, Roughness and Smoothness, Perspicuity and Opacity; alledging various Experiments concerning all these, and assigning Reasons for them.

In the *Second*, he undertaketh to explain the true Nature of the *Qualities* of Bodies by Experiments, and to make it
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out, that even those, that are commonly called *Occult*, may be explicated by Motion, Figure, Pores and Texture : where he discourseth at large of Heat, Cold, Gravity, Levity, Taste, Smell, Sound, Light, Colour, &c.

In the *third*, he delivers the History of the *Universe*, and particularly of the *Heavens*, and the Stars, Planets, Comets ; together with his Opinion concerning their Influences upon the Bodies here below.

In the *fourth*, he dispatches the Explication of those four great *Mas-fes* of the Sublunary World, the Earth, Water, Fire, and Air. About the *Earth* he examineth its Position and Suspension in the Air, and its Magnetical vertue. Of the *Water*, he considers its proprieties, the Origin of Rivers and Fountains, and the Cause of the Flux and Reflux of the Sea. Of the *Fire*, he discourseth of its various Effects both above and under ground ; Concluding this part with the Consideration of the great Power of the *Air* both in Natural and Artificial things.

In the *fifth*, he examineth *Fossils*, Mettals, Fluors, Salts, Stones, delivering his opinion about their origine, and discoursing amply of the *Magnet* in particular, assigning with *Des Cartes* the cause of the various *phenomena* thereof to be the passage of the *Materia striata* through the pores thereof.

In the *sixth*, he explains the doctrine of *Meteors*, Vapors, Exhalations, Winds, Rain, Hail, Snow, Dew, Thunder, Lightning, the Rainbow, &c.

In the *seventh*, he treateth of *Plants*, their variety, parts, qualities and vertues, vegetation, nutrition, decay, &c.

In the *eighth*, he giveth an account of *Animals*, of spontaneous and seminal generation, of the cause of Monsters, and of the different times observed in Animals for their bringing forth : To which he adds the various Affections of them, the Circulation of the Blood, Hunger and Thirst, Hatred and Love, Sleep and Waking, Infirmities and Diseases, &c.

In the *ninth* and last, he delivers the doctrine of *Man* in particular, adscribing to him, exclusively to Brutes, *Cogitation*, and asserting, that though Man, like other Animals, makes use of the like Organs of Sense with them, yet he doth not in that manner, as they do, perceive Objects, in regard that Sense in Man is *Cogitation*, which, in his judgment, belongs not to Brutes. Whereupon he gives here an account of divers Experiments about the Touch, Taste, Smell, Hearing and Seeing ; treating afterwards of Imagination and Memory, and explicating also the Cause of Dreams, and of the Passions, Propensions and Aversions in Man.

III. *The Description and Use of Two ARITHMETICK INSTRUMENTS, &c.* By S. Moreland. Printed in London, 1673. in 12°.

THE Ingenious Author of this Book, having some years since contrived two Instruments, whereof the one is for Addition and Subtraction, the other, for Multiplication; gives us here *both* a Description of the parts and Structure of these Instruments, and the way and manner of Using them: affirming withall, that the latter of these Instruments alone is also of excellent Use in *Division*, as likewise in Extracting the Square, Cube, and Square-Square-Roots; and likewise that, if any Curious person will go to the Expence, the *Adding* Instrument, being Joyned to the *Multiplying*, performs all the four Species of Arithmetick, and the Extraction of the said Roots, without the help of Pen and Ink, or exposing the Operator to any difficulty or uncertainty.

But for the better understanding of these Instruments, he endeavours so to explain and demonstrate the reason of the Operations of the said four *Species*, and Extraction of Roots, as to render them plain and easie to the meanest capacities: Annexing thereunto, in short, the Doctrin of Proportions, Arithmetical, Geometrical, and Musical; as also the whole Intrigue of the *Golden Rule*.

Which done, he teaches, 1. The Diameter of any Circle being given in *Integers*, to find the *Periphery*, and the *Square-root* of the *Area*, in *infinitum*, without the help newly mention'd.

Next, he giveth us his *Perpetual Almanack*, together with an Explanation thereof, dividing that Almanack into three distinct Tables, which make the Use thereof obvious to all that shall take notice of his directions and exemplifications.

Further, he subjoineth a Table for the ready finding, what Sign the *Moon* is in, or shall be for ever, together with the Use thereof: As also a Table shewing the Time of the Moon's coming to the *South*, and Quantity of her shining; with directions how to use the same.

To these he adds a *Tyde-Table* and its Use, for certain Havens in and about *England*; whereby may be known, what *Moon* maketh a *Full Sea* in any of such places, and how many hours and minuts are to be added to the time of the Moons coming to the *South* for the time of *High-water*.

More-over, he sets down the Time of the *Suns* Rising and Setting throughout the whole year; and furnishes us *both* with a Table, shewing the Length of the longest Artificial Day in all places from the Equinoctial to the Poles of the World; and with other Tables readily discovering the exact time of the *New* and *Full Moon*, as likewise the first and second *Quadrants*, and consequently her true Age, from the year 1673 to 1700.

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All which is concluded with an Advice touching the *Post* and *Roads*, said to be done more exactly than hath hitherto been published; and with a Table, carefully comparing *Forrain Weights and Measures* with the *English*, by the industry of Sir *Jonas Moor* Knight,

IV. *A Brief Account of some Travels in Hungaria, Servia, Bulgaria, Macedonia, Theffaly, Austria, Styria, Carinthia, Carniola, Friuli, &c.* By Edward Brown M.D. of the Colledge of London, Fellow of the R. Society, and Phys. in Ordinary to his Majesty. London, in 4°.

THIS Learned and Inquisitive Traveller gives so good an Account of the Voyages he made through those parts named in the Title, that thereby he excellently instructs others what great benefit may be made by Travelling, if performed with curiosity and Judgment.

In our Account of it we shall pass by the Observations made of the Polity, Oeconomy, Manners and Customs of the respective Inhabitants of those Countries, as not properly belonging to our task; and observe only what is Physiological, and may contribute to the enlargement of the History of Nature: In reference to which, we cannot but take notice, amongst many other, of these particulars following;

1. Of the shining Mountain of *Cliffura*, (one of the spurs of Mount *Hemus*,) and that of *Pyrlipe* in *Macedonia*, caused by the *Muscovia*-glafs they abound with.

2. Of Mount *Olympus* being inferior to some parts of the *Aipes* in height; Clouds also being seen above it.

3. Of the natural Productions of *Theffaly*, and in particular of the Plants growing there; among which is the *Ilex coccifera*, the Excretion whereof serves for dying and making the Confection of *Alchermes*.

4. Of a kind of Chalk at *Banca* in *Hungary*, which is of all colours, except green, and the colours so finely mixed, as Marble-paper doth not equal it.

5. Of the principal Mines of *Hungary*; as the *Silver*-mines at *Schemnitz*, 70 fathoms deep; abounding also with *Cinnaber*, *Crystals*, *Amethysts* and *Vitriol* naturally crystallized in the Earth: The *Gold*-mines at *Cremnitz*, about 9 or 10 English miles in length, of the depth of 170 fathoms; containing also *Vitriol* of divers colours, white, red, blue and green; and *Vitriolate* waters: Besides a neighbouring *Vitriol*-mine, about 80 fathoms deep: The *Copper*-mines at *Newfol* and *Herren-ground* containing very rich ore, and divers sorts of *Vitriol* and Springs of a *Vitriolat* water changing Iron into Copper: The *Salt*-mine at *Eperies* of great note, about 180 fathoms deep, yielding pieces of Salt of ten thousand pound weight.

In the description of all which Mines our Author delivers very particularly not only the Situation, depth, damps, waters, quantities, goodness and richness of Ore; but also the wayes used by the Inhabitants of reducing their Ores into Metals, &c. All which would be too large to particularise in this place.

6. Of the many natural Hot-baths of *Hungary*, as at *Banca*, *Glas-hitten*, *Eisenbach*, *Stuhn*, *Boinitz*.

7. Of the considerable Baths of *Austria*, especially those at *Baden*, 4 German miles from *Vienna*; described, at large also from our Authors communications, in *Numb. 59.* of these Tracts.

8. Of a Strange Lake of *Zirchnitz* in *Carniola*, very curiously described.

9. Of the considerable Quicksilver-mines at *Idria*, confirming the Account given of the same in *Numb. 2.* of these Tracts.

10. Of a stony excrescence upon the Liver of wild Goats, highly commended in Germany for a signal remedy against malignant diseases and the Plague.

For the particular description of all which, and many more, we must refer the curious Reader to the Book it self.

ERRATA in Numb. 93.

Pag. 603. l. 1. r. about *Dyser.* p. 6015. l. 27. r. *Firre.* p. 6025. l. 7. del. or *Meeter.*

ERRATA in this Numb. 94.

Pag. 6032. l. 28. lege *Globulum suspensum è funiculo (juxta longitudinē;)* these words being transposed in some Copies.

LONDON,

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